

عنوان مقاله:

EFFECT OF PREPARATION FACTORS ON THE ELECTROCHEMICAL PROPERTIES OF RuO₂-TiO₂
ELECTRODE FOR CHLORINE EVOLUTION REACTION

محل انتشار:

اولین همایش بین المللی و ششمین همایش مشترک انجمن مهندسی متالورژی ایران (سال: 1391)

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خلاصه مقاله:

60RuO₂-40TiO₂ coating was deposited on titanium substrate by the thermal decomposition of chloride solution. Electro catalytic activity of the coating for chlorine evolution was evaluated by Taguchi method. The effect of preparing parameters like drying temperature, heat treatment temperature and heat treatment time on exchange current density (j_0) was investigated by orthogonal arrays. Coated anodes were studied by Fieldemission scanning electron microscopy (FE-SEM) and X-ray diffraction (XRD). Chlorine evolution was studied in 5 M NaCl solution by potentiodynamic current potential curves. Analysis of variance (ANOVA) showed that the heat treatment temperature has the most significant effect on electro catalytic activity of the coating. Increase in heat treatment temperature affects the exchange current density by changing the active {101} crystallographic faces. Improvement in electro catalytic activity can be achieved with high drying temperature as a result of more surface area in cracked coating morphology

کلمات کلیدی:

DSA; Anode; RuO₂; TiO₂; Coating

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